Fiscal Year 2006 Annual Report on Energy Management and Conservation Programs

December 21, 2006

U.S. DEPARTMENT OF AGRICULTURE
FY 2006 Annual Report on Energy Management and Conservation

I. MANAGEMENT AND ADMINISTRATION

A. Energy Management Infrastructure

1. USDA Senior Energy Official

During FY 2006, the designated Senior Energy Official for the United States Department of Agriculture (USDA) was Mr. Boyd Rutherford, who also served as the Assistant Secretary for Administration (ASA). The ASA has the authority to implement Federal energy management policy related to the internal operations of USDA, and to exercise full Department-wide contracting and procurement authority.

Three of USDA's largest agencies, the Agricultural Research Service (ARS), the Forest Service (FS) and the Office of Operations (OO) also have agency Senior Energy Officials. The ARS Deputy Administrator for Administrative and Financial Management is the Senior Agency official who has the authority and responsibility for implementing Federal energy management policy related to the internal operations at ARS. FS has designated Mr. Hank Kashdan, Deputy Chief for Business Operations, as the agency's Senior Energy Official; he has chartered a group to develop an ecological footprint and sustainable (energy use) performance measures for the Forest Service. The designated Senior Energy Official for OO, which is a staff office within the ASA organization, is Ms. Priscilla Carey, the Director of Operations. Ms. Carey has the authority to implement federal energy management policy related to the operations of the Headquarters Complex and the George Washington Carver Center located in Beltsville, MD.

2. Agency Energy Team

Within the ASA organization, the Office of Procurement and Property Management (OPPM) has Departmental responsibility for policy, planning, and reporting, and serves as the primary inter-and intra-Departmental liaison on energy matters related to the facilities and internal operations of the Department. USDA agencies, in concert with OPPM, are responsible for the identification of appropriate energy conservation actions and programming, budgeting, and implementing the Energy Policy Act of 2005 (EPAct2005), Executive Order 13123, USDA's Departmental Regulation on Facilities Energy (DR-5500-001) requirements and the USDA Annual Energy Implementation Plan within their own organizations.

In accordance with Section 305 of Executive Order (EO) 13123, USDA has an Energy Support Team comprised of management, procurement, legal, real property, budget, and technical personnel. The team, which is listed on page 4, has representatives from various USDA agencies, including ARS, FS and OO. While the Department is composed of over twenty agencies and staff offices, the overwhelming majority of facilities ownership and related direct facilities energy consumption is attributable primarily to ARS, FS and OO.

ARS, FS, and OO also have established internal energy teams. ARS utilizes the Agency's standard organization at Headquarters, Areas, and Field Locations to achieve the goals of EPAct2005, EO 13123, and USDA DR-5500-001. ARS Headquarters has the overall responsibility for policy, planning, and evaluation for the implementation of the agency's energy program. Within ARS Headquarters, the Facilities Division and the Acquisition and Property Division provide inter- and intra-agency liaison on energy matters involving facilities management and procurement and property management programs.

The FS team is lead from Headquarters in Washington, D.C., which works with the regional program managers to implement energy initiatives at the ranger districts and national forests. The team's primary objective is to encourage regional and forest offices to be aware of and to implement energy and water conservation projects and practices to the maximum extent feasible. The team often collaborates with ad hoc groups of experts to assist FS in developing an ecological footprint and sustainable performance measures. The OO Energy team is comprised of professionals from various areas of expertise; the team is responsible for the design and implementation of energy conservation strategies and best management practices.

U.S. Department of Agriculture
Fiscal Year 2006 Energy Support Team

Senior Energy Official: **Boyd Rutherford**
Assistant Secretary for Administration

Executive Advisor: **Glenn Haggstrom**
Deputy Director, Office of Procurement and Property Management (OPPM)
U.S. Department of Agriculture Senior Real Property Official

Team Leader: **Sharon Holcombe**
Chief, Energy and Environment Division, OPPM
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Co-team Leader: **Charles Johnson**
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Legal Adviser: **Benjamin Young**
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Agency Representatives:

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Energy Program Manager
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B. Management Tools

In FY 2006, USDA continued the implementation of the Corporate Property Asset Information System (CPAIS). CPAIS is a web-based system designed to meet the Department's real property management, inventory and reporting needs. Several data fields for reporting facilities energy information have been incorporated into CPAIS. These fields include information on types and quantity of fuel used at the facility, energy audit history, and whether or not a facility has an energy and water conservation plan, uses ESPCs, and sustainable design principles.

1. Awards (Employee Incentive Programs)

USDA participated in the Department of Energy's Annual Federal Energy and Water Management Awards program and the "You Have the Power" recognition program. Agency personnel were encouraged to submit nominations for these programs to recognize outstanding contributions by employees to the energy and water conservation effort.

Individual USDA agencies conducted their own employee award and recognition programs as well. The ARS incentive and awards program recognized and rewarded employees for their energy saving contributions, and was implemented in varying ways within the agency. Specifically, a maintenance worker at ARS' Mayaguez, PR location was recognized for the implementation of energy conservation measures that resulted in a significant decrease in energy consumption in the seed cold storage units. Also, Spot Awards were given for promoting energy awareness and alternative energy procurement sources within ARS.

Within FS, the Region 2 forester designated a new category named "Sustainable Operations" under the honor awards program. The intent is to recognize an individual or group that makes a contribution to reducing the region's energy and environmental footprint. Also, several individuals within FS' Research Facilities Engineering group received Time-Off awards for their ideas and work to achieve energy savings during the year.

2. Performance Evaluations

USDA agencies continued to update position descriptions and performance standards to incorporate an energy management performance element for employees considered critical for the successful implementation of the energy management and conservation program. Accordingly, throughout USDA and its agencies, facility-related supervisors have energy conservation goals as part of their position descriptions and annual evaluations; while performance standards for building engineers, building managers, electricians, and maintenance mechanics include statements that allow exceptional performance to be measured in implementing energy conservation goals.

Also, pertinent field staff and facility/energy managers are required to have knowledge of legislation and special programs such as the National Energy Conservation Policy Act,

USDA's Energy Conservation for Buildings and Facilities Energy Retrofit Programs. It is also mandated that, such personnel possess the ability to make assessments and incorporate energy saving designs into construction and repair and maintenance projects.

3. Training and Education

USDA personnel participated in training opportunities throughout FY 2006 from a variety of sources, including energy management-related sessions offered by FEMP and other educational organizations. Specifically, USDA's Facilities Energy Program Manager received a Business Energy Professional certification from the Association of Energy Engineers. Additionally, staff from USDA's Energy and Environment Division (E&ED), along with agency representatives participated in FEMP's Energy 2006 Conference in Chicago, Illinois. Furthermore, E&ED disseminated hundreds of copies of various energy awareness and educational materials to agency facility and energy managers, and directed them to the Division's Facilities Energy website.

Within ARS, relevant energy management training and materials was provided to the workforce. At some ARS locations, the facility engineers received training by local power and water utilities on general conservation, best practices and rate structures available to minimize operating costs. Numerous individuals were trained on LEED, bio-based building materials, distributed energy, and the LABS 21 program. ARS engineers attended the USGBC Federal Facilities Summit Metering Workshop and were trained on EPAct2005 Metering requirements. A "New Employee Orientation" program that includes an energy management component was developed; facility personnel were educated on the use of automatic setback modes and lighting reduction; and purchase card holders were trained on energy-efficient products purchases.

The Forest Service conducted and participated in various training and education programs. Forest Service activity involved a Sustainable Operations Summit to kick off the FS' Region 2 efforts for reducing its ecological footprint. The summit included presentations and discussions on reducing energy and water consumption, as well as, developing sustainable leadership. Regions 2 also hosted an Energy Awareness brown bag lunch where more than 60 participants viewed the movie "Kilowatt-Ours." During the "brown bag", speakers from the National Renewable Energy Lab shared information on saving energy at home and the office, and the long term impacts associated with current energy consumption in the United States. Other Forest service training events included LEED accreditation and energy management systems.

The Office of Operations maintained three trained Certified Energy Managers on staff. Additionally, USDA's Grain Inspection, Packers and Stockyards Administration (GIPSA) provided educational and awareness material about energy and fuel conservation to all Headquarters, Regional, and Field Office managers and employees.

4. Showcase Facilities

USDA and its agencies evaluated newly approved and funded major facility construction or modernization projects as possible candidates for Federal Energy Saver Showcase designation. In selecting these Showcase buildings, appropriate considerations were

given to the level of non-Federal visitors, historic significance, and the likelihood that visitors will learn from displays and implement similar projects.

Two facilities in the design or construction phase within FS have been designated as showcase facilities; specifically:

- The Coeur d'Alene nursery energy retrofit project in Region 1, which was completed last year at a cost of $2.6 million to replace the tree cooler refrigeration system and lights. The project has reduced the nursery's energy consumption by 75%. Region 1 is presently working with FEMP to initiate a second project to address water and further energy conservation measures.

- The Bessey District/Nursery is the Region 2 first attempt at combining The Built Environment Image Guide for the National Forests and Grasslands with the U.S. Green Building Councils Leadership in Energy and Environmental Design (LEED) principles. Documentation is currently being prepared to obtain silver certification.

Also, OO completed Phase 3 of the South Building Modernization. The South Building modernization will result in a showcase facility of more than two million square feet when completed. The South Building modernization is being designed to meet LEED for existing building standards.

II. ENERGY EFFICIENCY PERFORMANCE

A. Energy Reduction Performance

1. Goal Subject Buildings

In FY 2003, USDA's energy use index was 88,776 BTU per gross square feet (GSF). In FY 2006, USDA's EUI is reported as 80,112 BTU per GSF, which represents a 9.8 percent reduction compared to the FY 2003 baseline. USDA exceeded the EPAct2005 goal of a 2 percent reduction for FY 2006.

Utility invoices compiled by USDA's National Finance Center (NFC) form the basis for a significant portion of the consumption levels reported for energy and fuel. NFC's FY 2006 records may have been skewed by the impact of Hurricanes Katrina and Rita.

Also, space utilization mandates require USDA to configure spaces to accommodate the maximum number of employees into the Headquarters Complex in order to reduce the use of leased spaces. As modernization phases are completed and more personnel are relocated into the facility, energy consumption increases. This is offset only by drastic conservation efforts of facility management personnel.

2. Excluded Facilities

USDA has no excluded facilities to report for FY 2006.

3. Non-Fleet Vehicle and Equipment Fuel Use

In FY 2006, USDA reported using 95,700 gallons (12.0 BBtu) of aviation fuel, which represents an 88.4 percent reduction compared to the department's FY 2005 usage. The large decrease in aviation fuel from FY 2005 to FY 2006 are partially a result of the actions undertaken by the department and its agencies in response to the President's Memorandum (dated September 26, 2005) on Energy and Fuel Conservation.

USDA's fuel use related to aircraft is reported in the Federal Aviation Interactive Reporting System (FAIRS).

B. Renewable Energy

In FY 2006, USDA issued a Departmental Regulation on Facilities Energy which required agencies to comply with the renewable energy requirements of EPAct2005. USDA agencies strived to select products, materials, and systems that maximize the use of renewable energy. Appropriate consideration was given to incorporating solar and other renewable technologies when life-cycle cost-effective. Accordingly, through a combination of purchases and on-site generation USDA used 93.9 billion Btu of renewable energy, which is equivalent to 4.7 percent of USDA's total electricity use for FY 2006. USDA exceeded the EO 13123 renewable energy use goal of 2.5 percent for FY 2006.

Also, as part of the Renewable Energy Systems and Energy Efficiency Improvements program, USDA made available $176.5 million in loan guarantees and almost $11.4 million in grants to support investments in renewable energy and energy efficiency improvements by agricultural producers and small businesses. The Renewable Energy and Energy Efficiency loan and grant program was established under Section 9006 of the 2002 Farm Bill to encourage agricultural producers and small rural businesses to create renewable and energy efficient systems. One guarantee, for $10 million, was combined with a Business and Industry guarantee to help fund construction of a 20-megawatt biomass electrical generating plant in Arizona. That plant will use wildfire damaged timber along with waste from a nearby paper mill as a fuel source.

1. Self-generated Renewable Energy

Within USDA, FS continued to install photovoltaic systems at remote sites, and used passive solar design strategies, to the greatest extent possible, in new facility design and construction. Since 1990, FS has installed over 500 photovoltaic units mainly at remote sites formerly served by fossil-fueled generators. Forest Service projects reported in FY 2006 include:

- In Region 2, eight 90 watt photovoltaic panels and one 75 watt photovoltaic panel were installed at Trappers Lake to provide power for a remote water distribution system that serves 60 campsites. The campground is open from

mid-June through the end of September. The panels provide power to operate a 400 watt well pump and a 19 watt chlorinator pump. Estimated annual energy generated is 155 KWH /year. This power is generated and used on Federal lands.

- In Region 4, a solar powered electrical unit replaced a small LPG generator powering a water system with a solar powered well pump and provides DC power to a host site.

- Region 10 uses six solar/wind/battery powered units at remote sites for a total 835 KWH/season.

The Beltsville Agricultural Research Center (BARC), which is part of ARS, has installed approximately 74 generators operated by B-20 (Biodiesel fuel) in its facilities. Though the use of these generators is infrequent, each recycled at least once a month during FY 2006. BARC utilizes a turbine at the dairy fueled by methane abstracted from animal waste. Also, BARC is cooperating with the Idaho Department of Water Resources to investigate the possibility of utilizing a wind turbine at the facility in Dubois, Idaho.

The Office of Operations had one solar thermal system which generated approximately 0.2 billion BTU in FY 2006.

2. Purchased Renewable Energy

In FY 2006, USDA's Office of Procurement and Property Management purchased 25,300 MWH of Renewable Energy Certificates (RECs) for the department at-large. The purchase, which was facilitated by the Defense Energy Support Center, includes RECs generated from biomass and wind power.

The Forest Service's Region 2, through an Inter-Agency Agreement between Western Area Power Administration and the Rocky Mountain Regional Office, purchased 550 MWH of renewable energy of which 50% is biomass. It is estimated that this power is approximately 5% of Region 2's electrical power consumption.

An ARS Location in Athens, Georgia location purchased 20% bio-diesel for running generators and the duel fuel boilers for steam production. Also, the Gainesville, Florida location purchased 60 MWH of "Green" Energy from Gainesville Regional Utilities.

C. Petroleum

Data from the USDA's National Finance Center and purchase card records showed that USDA used 3,538,200 gallons of petroleum based fuels during FY 2006 compared to 9,489,900 gallons in FY 2003. This represents more than a 60 percent reduction from FY 2003 to FY 2006. The large decrease in petroleum from FY 2003 to FY 2006 are partially a result of the actions undertaken by the department and its agencies in response to the President's Memorandum (dated September 26, 2005) on Energy and Fuel Conservation.

D. Water Conservation

USDA agencies made progress in implementing the water conservation goals of Executive Order 13123. Overall, 27 USDA facilities implemented or continued to implement Water Management Plans (WMPs); while 20 facilities implemented WMPs and had at least four water conservation Best Management Practices during FY 2006.

USDA used an estimated 2,109 million gallons of water in its buildings during FY 2006. This represents a 16.8 percent decrease in water consumption compared to the department's FY 2003 baseline of 2,534 million gallons. The average unit cost for USDA water nationwide in FY 2006 was $3.75 per thousand gallons, which is in line with other GSA/Federal national water costs.

USDA lacks a departmental system for tracking water use, and has to rely on cost-based estimates (from water, trash, and other utilities object class accounting codes) for reporting. However, improved data collection continues to capture more consumption and costs each year.

ARS reported implementation of a wide variety of new and ongoing water conserving methods and practices. For instance, BARC saves water by using effluent from its wastewater treatment facility as a boiler plant feed-water alternative. In the South Atlantic Area, a facility decreased watering schedules during cold weather and turned off the irrigation system in the rainy season. In the North Atlantic Area, low flush toilets were installed within buildings and work sites; and the Western Regional Research Center implemented BMP's for efficient use of water relative to landscaping irrigation.

Within FS, the Regions reported implementing many water conservation measures during FY 2006. Region 2 installed water meters as part of new construction projects. In Region 4, numerous well, water and septic systems were repaired or upgraded to eliminate leaks. At the Forest Products Laboratory (FPL), water usage is metered and any anomalies in the standard usage patterns bring about immediate investigation and remediation. In order to conserve water, FPL will continue to change out old single pass water-cooled heat exchangers with air-cooled ones, as they need to be replaced.

OO implemented several water conservation strategies during FY 2006; including reduced landscaping irrigation, utilization of waterless urinals, and installation of low flow devices.

III. IMPLEMENTATION STRATEGIES

USDA employed the following implementation strategies to reduce energy consumption and enhance energy efficiency in FY 2006:

A. Life-Cycle Cost Analysis (LCCA)

ARS used life-cycle cost methodologies and Value Engineering to identify energy conservation opportunities. Agency Policies and Procedures (P&P) were in place requiring use of LCCA for evaluating energy conservation opportunities and decision making. For example, P&P 242.5, Economic Analysis and Decision for Facility Modernization, requires performance of economic analysis to determine the best method of implementing facility modernization between such options as Selective Renovation or Gutting and Rebuilding of existing building, and constructing New Replacement Facility. Also, P&P 242.7, Value Engineering, implements the ARS policy and procedural requirements of OMB Circular No. A-131 in the use of VE techniques to reduce cost and improve and maintain optimum quality of ARS construction and acquisition program functions.

FS policy requires the use of life-cycle cost analysis and value engineering for new buildings, as directed in the Forest Service Manual. In FY 2006, LCCA was used to study the cooling system for the Rocky Mountain Research Station Laboratory in Fort Collins, Colorado. Refrigeration was compared to a Direct/Indirect cooling system. Based upon the life cycle cost analysis, the Direct/Indirect system was recommended. Also, LCCA was employed in Regions 6 and 9 for all Capital Investment Projects as a basis for selecting HVAC projects.

For major facilities renovations and equipment replacement, life-cycle cost analysis is integral to the decisions about products, services, construction, and other projects at the Forest Product Labs (FPL). FPL conducts benefit-cost and cost-effectiveness analyses in accordance with OMB Circular No. A-94, "Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs". Long-term savings to the Government and near-term investment payback, along with dependability, energy efficiency, ease of operation and low maintenance, are always prime considerations when programming an equipment purchase or system renovation. FPL also makes decisions related to construction projects and energy reduction practices using the "Choosing By Advantages" (CBA) process. All of the major Capital Improvement projects that were implemented in FY2006 were selected, in part, for benefits determined by Life-Cycle Cost.

B. Facility Energy Audits

USDA's Agricultural Research Service reported that 5 locations in the North Atlantic Area have undergone energy audits during FY 2006, for a total of 157,480 square feet. ARS also indicated that in the Mid-South Area, 10 of the buildings underwent and energy audit in FY 2006. Furthermore, ARS' Pacific West Area completed an Energy Audit which resulted in a project to upgrade the building automation system with an automation engine that manages facilities using information and internet technologies.

In FY 2006, the Forest Service reported that energy audits were performed on several buildings, which resulted in the implementation of energy retrofits at these facilities.

C. Financing Mechanisms

<u>Energy Saving Performance Contracts (ESPCs)</u>

In FY 2006, USDA agencies received benefits in reduced energy usage from ESPCs awarded in previous fiscal years. The National Animal Disease Center, in Ames, Iowa, continued its ESPC which was awarded in 1999 under the DOE Mid-West Area Super ESPC. Payments totaling $641,184 were made to Johnson Controls, Inc. in FY 2006. Also, the National Agricultural Library, in Beltsville, Maryland, continued its ESPC to cover lighting retrofits, burner replacement, chiller plant automation, and building automation system. The ESPC which was awarded in FY 2000 yields an estimated energy savings of 11,463 million BTUs per year. FY 2006 payments totaling $126,720 were made to NORESCO.

USDA's OPPM staff continued to encourage the agencies to take advantage of this financing mechanism to implement more energy saving projects.

Utility Energy Services Contracts (UESCs)

USDA did not enter into any new UESCs during FY 2006.

D. ENERGY STAR® and Other Energy-Efficient Products

In FY 2006, USDA continued its policy of buying computer equipment and other high volume products that meet the ENERGY STAR requirements. USDA agencies have been proactive in requiring the purchase of these products.

For example, ARS acquired microcomputers that meet the Energy Star requirements; and all new and replacement IT equipment purchased by GIPSA were required to have an ENERGY STAR label. Purchases of equipment made directly and indirectly (through O&M contracts), were monitored to ensure that they meet Energy Star requirements.

Also, in FY 2006 several USDA agencies, offices and facilities joined the White House Office of the Federal Environmental Executive's Federal Electronic Challenge (FEC). FEC is a voluntary government-wide program that encourages agencies to purchase environmentally-preferable and energy-efficient electronic equipment, such as, personal computers, laptops, copier machines and other office equipment.

E. ENERGY STAR® Buildings

The Forest Products Laboratory in Madison, Wisconsin (Research Demo House/Laboratory) was awarded the ENERGY STAR label in October 2001, and is also certified as a Green Built House. The design and construction incorporate environmentally sensitive practices that reduce pollutants and improve indoor air quality, while also conserving water, energy, and other natural resources. Many of the building materials were derived from recycled products. The building also demonstrates the durability, energy efficiency, affordability, and environmental stewardship of America's housing.

In FY 2006, ARS completed three major construction projects which include many of the energy efficiency measures identified for Energy Star buildings, they are: the Western Human Nutrition Research Center Facility in Davis, California; the US Arid Land Agricultural Research Facility in Maricopa, Arizona; and New Laboratory Addition in Aberdeen, Idaho. Also, an Energy Star compliant modular quad building was purchased and installed in Florence, South Carolina.

F. Sustainable Building Design

During FY 2006, USDA agencies had a total of 14 buildings that were either in the design or construction phase that can or will be LEED certified.

ARS began implementing elements of the Sustainable High Performance Buildings MOU; appropriate sustainable design considerations were given in the siting, design, and construction of new facilities. These principles have been incorporated in the Agency's facilities design standards.

Sustainable building design is inherent in the LEED certification process, which FS has adopted. At the Forest Products Lab (FPL), sustainable building design principles are incorporated into all aspects of construction of new facilities and, where feasible, into existing facility renovations. Sustainable building design principles were incorporated into the siting and design of the major CIP "FPL Modernization" project that is scheduled for phase 1 construction in FY 2007.

G. Energy Efficiency in Lease Provisions

In FY 2006, USDA continued to direct its agencies to incorporate the model lease provisions contained in the USDA Real Property Leasing Handbook and the General Services Administration Energy and Environmental Business Practices in Lease Acquisition Guide. Also, USDA issued a departmental regulation on Facilities Energy, which instructs agencies to incorporate energy efficiency provisions into leases. Eight USDA agencies have leasing authority and continued to address energy issues in their lease solicitations.

The Forest Service Region 2 office is developing green lease provisions for leases. This effort was nearly completed in FY 2006; use of the green lease provisions will be discussed by the Agency leasing officers in early 2007 for possible national implementation.

Also in FY 2006, the Grain Inspection, Packers and Stockyards Administration continued to require its offices to incorporate lease provisions that encourage energy and water efficiency whenever life-cycle cost effective.

H. Industrial Facility Efficiency Improvements

For the Ames, Iowa modernization project, USDA signed a partnership agreement in the Labs21 program that is jointly sponsored by the Environmental Protection Agency and the

Department of Energy. The program focuses on laboratory facilities and is intended to improve energy and water efficiency and to encourage the use of renewable energy sources. The project involves two of USDA's largest agencies: ARS and APHIS. The partnership agreement was signed in FY 2003, and work continued on this project in FY 2006.

As part of their ongoing facilities repair and maintenance program, USDA agencies executed numerous projects related to building energy efficiency and conservation improvements during FY 2006. Specific facility energy efficiency activities included the "Chemical Wing" modernization at the ARS Eastern Regional Research Center in Pennsylvania, which entailed replacing electrical lighting systems, insulation systems and building automation control systems with the most up-to-date efficient equipment. Also, at tree nurseries and coolers significant energy consumption reductions were achieved as a result of energy retrofit projects.

I. Highly Efficient Systems

In FY 2006, USDA agencies considered combined cooling-heat-power systems when upgrading and assessing facility power needs. Specifically, a geothermal system was studied for a new facility in Bozeman, Montana; but was determined not to be life-cycle cost effective.

J. Distributed Generation

USDA agencies continued to consider off-grid electricity opportunities that provide energy and environmental benefits when life-cycle cost-effective.

The cogeneration and standby generation systems completed in FY 2001 allow the National Animal Disease Center (NADC) to generate electrical power off-grid as needed. Off-grid generation is also provided to the National Soil Tilth Laboratory by Iowa State University, where small solar cell systems are used on several field instrumentation operations.

In the ARS Southern Plains Area, a micro-turbine has been purchased and will be used to provide power to the wind-diesel research efforts and mini-grid. Also, a Bushland, Texas facility operated nine wind energy systems and three solar water pumping systems; and is conducting wind resource surveys for other ARS laboratories to determine the feasibility for wind energy systems.

K. Electrical Load Reduction Measures

USDA and its agencies continued to pursue and implement electrical load reduction measures by relying upon established procedures during FY 2006. USDA sites have enhanced communications with the local utility company to better understand their needs for load reductions during peak times. Appropriate facility load reduction measures have also been identified (i.e., raising indoor temperatures to 78 degrees during the cooling season; shutting down non-essential space cooling up to one hour before the normal close of each

workday; and turning off non-essential building systems and lighting). Systems have been established to alert employees of expected high demand days via email, voice mail, and public bulletin boards. Also during FY 2006, employees were encouraged to take steps to reduce lighting, personal computer and electrical appliance usage.

ARS partnered with PEPCO (a local Washington, DC area electric utility) in an Energy Reduction Program designed to limit electricity use during non-occupied periods; and installed 74 generators operated by B-20 (biodiesel fuel) that operate on automatic switch gear control mode to support emergencies. The ARS Location in Fort Collins, Colorado has installed tariff ceilings that work with the city's "hot shot" signals to reduce power usage at critical times on the grid. Also, when needed, the National Agricultural Library reduced some of the power requirements during power emergencies by using a 500 KVA emergency generator to power elevators, data centers, life safety equipment, as well as, various mechanical equipment.

In Region 2 of the Forest Service, advanced electric metering and demand management capability was added to the Rocky Mountain Research Facility. The meters monitor power used for lighting, plug loads, HVAC equipment, and research. Metering was added based upon the Federal Energy Management Program's "Guidance for Electric Metering in Federal Buildings".

The time clock which controls the HID lights around the skylights in the USDA headquarters main cafeteria was reset to turn off at 9:30 am. OO has monitored the lighting level in the cafeteria and made adjustments depending on exterior sunlight. The actions resulted in an approximate savings of 24,000 KWH.

Also, OO has installed a daylight harvesting pilot project in their main offices. This project presents a significant energy reduction potential for OO. The project involves daylight harvesting technology utilizing dimmable ballasts and light sensors that reduce light output based on natural sunlight infiltration. OO is currently metering and monitoring energy reductions for long-term savings results. Light output has been lowered from 70 ft candles to 30 ft candles.

IV. DATA TABLES AND INVENTORIES

A. Assessment of FY 2003 Energy Data for EPACT 2005 Baseline Foundation.
{Attached}

B. FY 2006 Annual Energy Management Data Report.
{Attached}

C. Energy Scorecard for FY 2006.
{Attached}

D. Excluded Facilities Inventory.

USDA has no excluded facilities to report for FY 2006.

V. ATTACHMENTS

A. U.S. Department of Agriculture FY 2007 Implementation Plan

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